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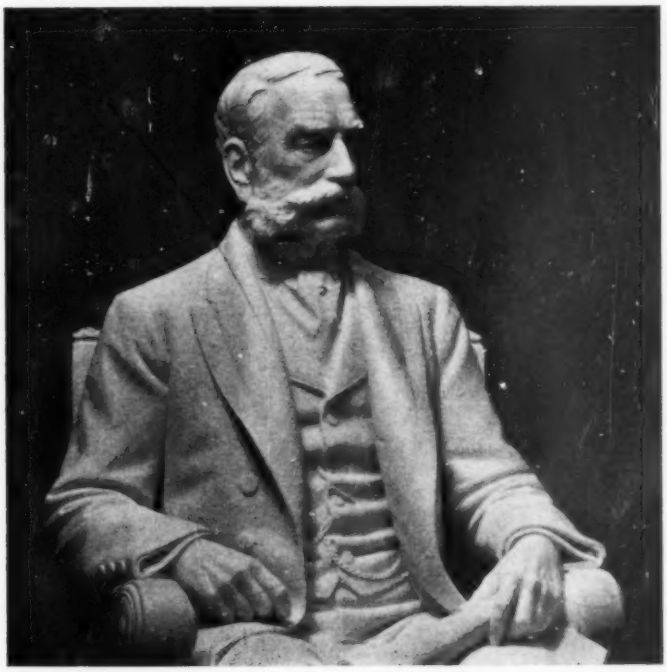

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NEW YORK CITY

American Museum of Natural History

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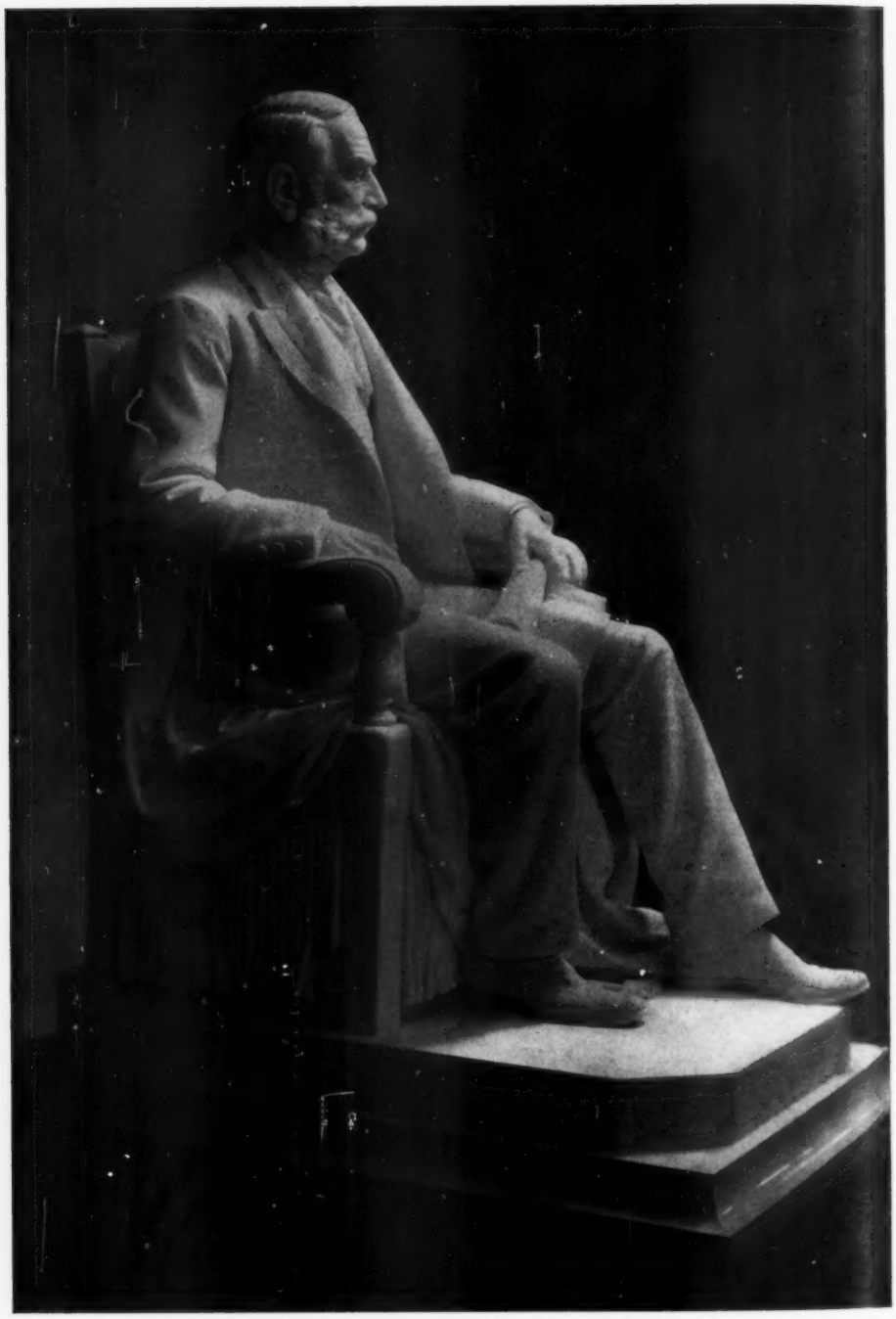
THE AMERICAN MUSEUM OF NATURAL HISTORY was established in 1869 to promote the Natural Sciences and to diffuse a general knowledge of them among the people, and it is in cordial coöperation with all similar institutions throughout the world. The Museum authorities are dependent upon private subscriptions and the dues from members for procuring needed additions to the collections and for carrying on explorations in America and other parts of the world.

The membership fees are,

Annual Members	$ 10	Fellows	$ 500
Sustaining Members (Annual)	25	Patrons	1000
Life Members	100	Benefactors (Gift or bequest)	50,000

All money received from membership fees is used for increasing the collections and for developing the educational work of the Museum.

The Museum is open free to the public on every day in the year.



MEMORIAL STATUE OF MORRIS K. JESUP

By William Couper, Sculptor

The American Museum Journal

VOL. X MARCH, 1910 No. 3

COMMEMORATION OF THE FOUNDING OF THE MUSEUM

UNVEILING OF THE STATUE OF MORRIS K. JESUP

ON the afternoon of Wednesday, February 9, 1910, a notable assemblage gathered in the Foyer of the American Museum to witness the unveiling of a statue of the late Morris K. Jesup, who for more than a quarter of a century was the president of the institution, and to listen to an address commemorating the founding of the Museum forty-one years ago. Shortly after Mr. Jesup's death in January, 1908, the Trustees and others of his friends, feeling that a suitable memorial of the late President should be installed in the Museum to which he had devoted so much of his life, subscribed to a fund [1] for the purpose of placing in the Foyer of the building a life-size marble statue of Mr. Jesup. Mr. William Couper, the sculptor of the busts of scientists in the Foyer, was engaged to prepare the statue. The artist, from his own long acquaintance with Mr. Jesup, was inspired with his subject and produced a satisfying portrait showing him in his prime.

The exercises were begun with music, and at four o'clock President Osborn and Honorable Joseph H. Choate entered the Foyer leading the procession of Trustees to the temporary platform which had been erected at the south side of the hall, facing the statue. On the platform were representatives of the National, State and City Governments, besides delegates from great universities, scientific societies and other educational institutions in this city and elsewhere, the full list being as follows: J. A. ALLEN, ALBERT S. BICKMORE, JOHN BIGELOW, GEORGE S. BOWDOIN, NATHANIEL L. BRITTON, HERMON C. BUMPUS, NICHOLAS M.

[1] The subscribers to the Jesup Memorial Fund are Messrs. HENRY F. OSBORN, J. PIERPONT MORGAN, CLEVELAND H. DODGE, CHARLES LANIER, J. HAMPDEN ROBB, CORNELIUS N. BLISS, ALBERT S. BICKMORE, GEORGE S. BOWDOIN, ANDREW CARNEGIE, JOSEPH H. CHOATE, ANSON W. HARD, JAMES J. HILL, FREDERICK E. HYDE, ADRIAN ISELIN, ARTHUR CURTISS JAMES, A. D. JUILLIARD, JOHN S. KENNEDY, GUSTAV E. KISSEL, SETH LOW, J. PIERPONT MORGAN, JR., HORACE PORTER, PERCY R. PYNE, ARCHIBALD ROGERS, WILLIAM ROCKEFELLER, JACOB H. SCHIFF, CHARLES STUART SMITH, JOHN T. TERRY, JOHN B. TREVOR.

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As soon as the invited guests were seated, the addresses that follow were delivered to a most sympathetic audience that filled the Foyer and overflowed into the Northwest Coast Hall behind the statue. At the close of President Osborn's welcoming remarks, the veil was removed from the marble portrait of Mr. Jesup, and the assembly showed its appreciation of the likeness of their former friend. After the close of the addresses, the members of the Museum and guests present were given an opportunity to visit the newly arranged North Pacific Hall, the Jesup Forestry Hall and the Darwin Synoptic Hall.

ADDRESS OF WELCOME

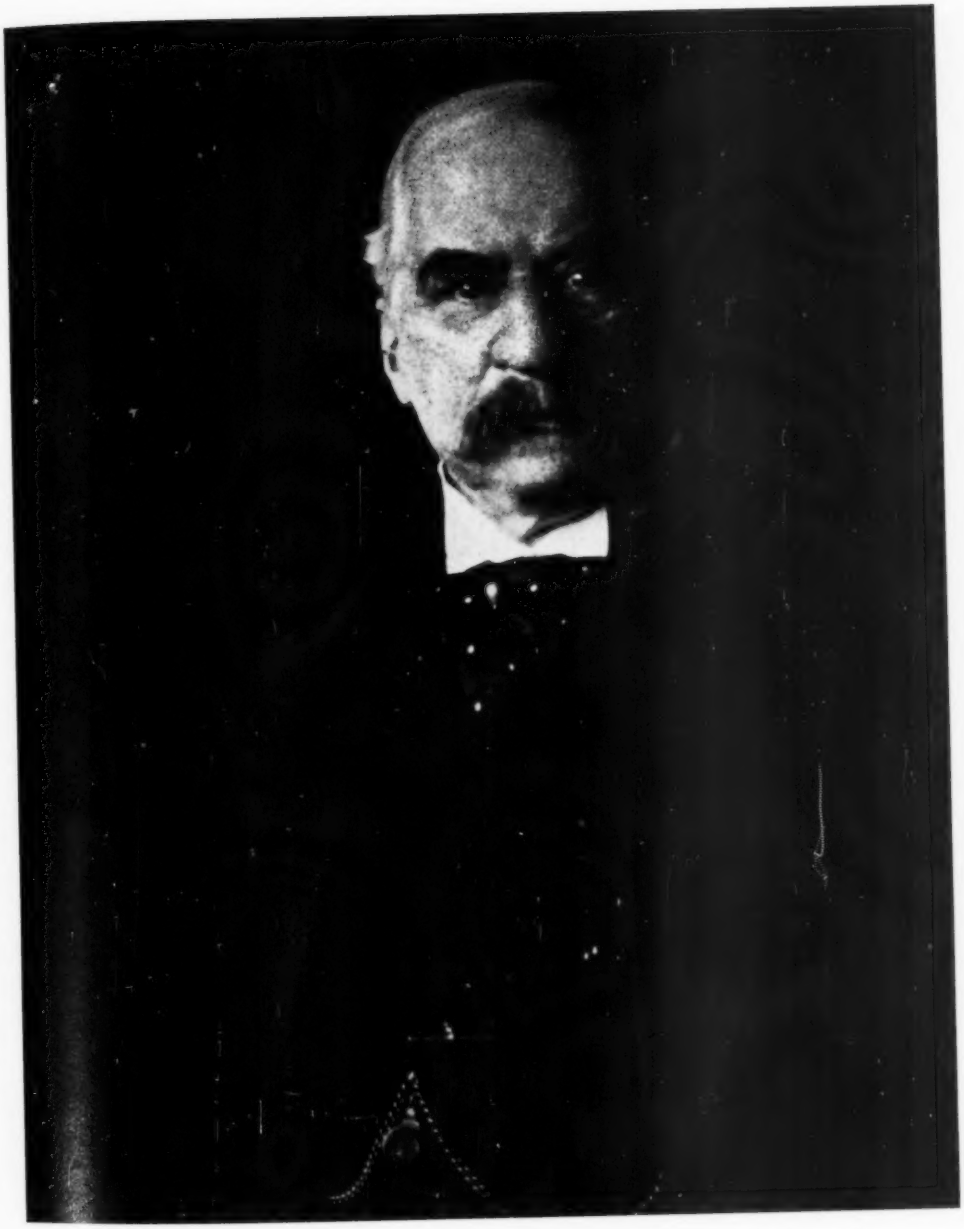
By HENRY FAIRFIELD OSBORN

President of the Museum

Members of the American Museum of Natural History:

We commemorate this afternoon the founding of the Museum in 1869. For their services to our city and country we pay our tribute to the first presidents, John David Wolfe and Robert L. Stuart, and especially to the third president, Morris Ketchum Jesup, distinguished by his long and eventful administration.

As the oldest institution of the kind in the City of New York we welcome



J. PIERPONT MORGAN

A Founder and Trustee

representatives of our twin sister, the Metropoliton Museum of Art, of our younger companions, the Public Library, the Brooklyn Museum, the Zoölogical Park, the Aquarium and the Botanical Garden,— all animated by the same purpose, all under a similar government, and together forming a chain of free educational institutions of which the City may well be proud.

We are honored by the presence of delegates from the President of the United States, from the Governor of this State, from several of the great American universities and from national institutions of scientific research.

We welcome the leading officers of the City government and of the Board of Education. His Honor, the Mayor, the President of the Park Department and the Comptroller are with us as members of our Board. It is significant that these heads of the second great municipality of the world are uniting to play the part of hosts in this celebration, because the City and the Trustees have enjoyed from the first a free and cordial union. From their entire community of purpose there is no reason why they should ever disagree. Through the original application of the Museum for land, this institution is legally under the Department of Parks, but while the relation is amicable and effective, the museums are less a part of public recreation than of the great civic system of education.

A few words may be said as to our future, as to the kind of educational spirit which has been developed under past administrations and will be increasingly developed in the coming years in other branches of science. We believe that we are only on the threshold of the applications of science, or knowledge of the laws of Nature as they bear on human morals, welfare and happiness. If there is one new direction which this Museum shall take, it is in the applications of science to human life. Here people shall have a vision not only of the beauty, the romance, the wonder of Nature, but of man's place in Nature, of laws as inexorable as the moral commands of God handed down by great religious teachers. Over the portals of our new Hall of Public Health we may well place the inscription, "Learn the Natural Commandments of God and Obey Them." If Nature is stern and holds in one hand the penalty for violation of her laws, she is also gentle and beneficent and holds in the other hand the remedy, which it is the duty of science to discover and make known.

What is the part the Museum exhibition halls should play in this education? An ideal museum is a mute school, a speechless university, a voiceless pulpit; its sermons are written in stones, its books in the life of the running books; every specimen, every exhibition, every well-arranged hall speaks for itself. In this sense, in its appeal to the eye, in its journeys for those who cannot travel, the Museum is not the rival but is the ally of all other methods of instruction within its own walls and throughout the great city.

This Museum is a monument of public spirit in New York. We owe the rise of public spirit in this city and country to the war for the Union; that terrible experience brought men and women of all classes together in a closer sympathy, into a new and greater union. Thus Lincoln was our prophet at Gettysburg when he said, "This nation under God shall have a new birth of freedom." As will be fully told by the historian of the day, the inspiration to build a free museum for the people of this city came to us through Albert S. Bickmore. Under his scientific guidance and that of Daniel Giraud Elliot the right direction was taken. Both of these men are happily with us in this hall to-day.

The Founders of 1869, whose names have recently been inscribed on yonder wall, voiced the public spirit of their day. New York was a relatively small and relatively poor city. It was before the era of the great captains of industry, of the single-handed patrons of art, science and education. Nor were there any models on which to draw the lines or to take the scale; there was no British Museum of Natural History, there was no National Museum of the United States. We marvel the more at the audacity of Trustees who conceived a museum so great and who in 1874 approved a general plan larger than that of any building in the world even to the present day, larger than the Escorial of Spain or the National Capitol of Washington.

It crowns this commemoration that four of the originators of the Museum are with us,— two of its scientific advisors, two of its Founders. If I were asked which of the Founders contributed most to administration and development I would say unquestionably Mr. Jesup, Mr. Morgan and Mr. Choate. Of the splendid services of our late President is it not delightful that his colleague for thirty-nine years, Mr. Choate himself, is here to speak?

Our two Founders, *mirabile dictu*, are as young as or younger than they were forty years ago. If youth is measured by energy, by productiveness, by patriotism, these Founders are two of the very youngest men in the City of New York, as each day brings forth fresh, surprising and ever welcome proofs. Who among the so-called younger generation can equal Mr. Morgan, who has quietly and almost unknown to the public sustained the successive administrations of Wolfe, Stuart and Jesup, with his loyalty, his time, his advice, his noble gifts, and who stands behind the present administration with undiminished force and generosity?

Are not our very bones founded in the law? In the early years Mr. Choate rendered incomparable and lasting service, not only to the two museums but also to the City, in laying down our charter relative to that union of public and private responsibility and beneficence which has been the model on which all the other institutions of the kind in this City have been founded. This union has proved by experience to be perfect, for it has

JOSEPH H. CHOATE

A Founder and Trustee

given the city of New York something far superior either to the publicly administered institutions of foreign cities or to the privately owned and privately administered institutions of other great American cities. The essence of this charter and constitution is that from the beginning the city officials as the elective representatives of the people undertake to give the land, the building, the maintenance; the Trustees volunteer to give their best ability and their valuable time to administration, their means and that of others to filling the building with collections.

The agreement has been kept on both sides in the best spirit. To the honor of the City of New York be it said that her rulers have never withheld funds from education, nor have her citizens been lacking in generosity. Owing to this peculiarly American and altogether ideal union of public and private endeavor, we discover that at the end of forty-one years the amount which the people of the city of New York have contributed through their government to this Museum is balanced by an equal amount given by officers, trustees and other friends.

I have therefore great pleasure in introducing as the orator of the day the Honorable Joseph H. Choate, Founder, Trustee and author of the laws of our being.

COMMEMORATION ADDRESS

By the Honorable JOSEPH H. CHOATE
A Founder and Trustee of the Museum

Mr. President and Ladies and Gentlemen:

Time, like an ever-rolling stream, bears all its sons away, and a lapse of forty years sweeps off a whole generation and more. After their forty years' wandering in the wilderness, when the children of Israel came again to be numbered on the plains of Moab, Caleb and Joshua alone survived of all who had escaped out of the house of bondage in Egypt; and so Mr. Morgan and I alone survive of those who founded this great Museum in 1869. We have accompanied its progress through mazes of doubts and difficulties until it has come at last within sight at least of a land flowing with milk and honey. I am sure that he will heartily join with me in this tribute to our departed associates, that this marvellous growth and development are to be attributed to their fidelity and courage, their public spirit and their unbounded generosity; and when I read their names you will realize how near they come to our hearts and homes, and how much richer and better New York is for their having lived in it:

John David Wolfe	Theodore Roosevelt
Robert Colgate	Howard Potter
Benjamin H. Field	William T. Blodgett
Robert L. Stuart	Morris K. Jesup
Adrian Iselin	D. Jackson Steward
Benjamin B. Sherman	A. G. Phelps Dodge
William A. Haines	Charles A. Dana.

It was to their initiative and far-seeing sagacity that the City and the country owe the beginning of this great educational and scientific institution, and, as you all know, there is nothing so hard as a beginning.

New York was sadly behind her sister cities in this interesting development of knowledge and science. Although she had many learned naturalists, and had made spasmodic efforts for the establishment of a museum in which their valuable collections might be gathered, she had allowed Philadelphia and Boston to be far in advance.

The advent of the great naturalist, Professor Louis Agassiz, at Cambridge, a signal event in the history of Harvard, his boundless enthusiasm for science, and the wonderful manner in which he imparted it to his pupils and hearers, gave an impetus to the study of natural history not only at Harvard, but throughout the country which had never been felt before. The truth is that the acquisition of one truly great man by a university does more for the advancement of learning than whole decades of mediocrity; and Harvard and the country awoke from long slumber to a new life of study and inquiry under the light and leading of this famous scholar and naturalist, and almost all the men who afterwards became famous in natural history flocked about him as pupils and gathered inspiration from his lips. The arrival of Professor Arnold Guyot at Princeton soon afterwards was another great incentive, and the formation and rapid increase of museums at the two universities and in Philadelphia were examples of the practical advance in science as a means of education which New York could not fail to imitate.

There were many strong men here interested in the subject; there were ample resources and many interesting and valuable collections within reach, but there was a total lack of organization, an apparent inability to get together, which paralyzed the growing and general desire for the establishment of a museum of natural history which should be worthy of New York as a great intellectual center. In fact, I am not sure that New York was then a great intellectual center. Its intense energies, stimulated by the triumphant close of our great Civil War, were concentrated in commercial channels, and while they were ready to give generous help to any honorable enterprise, our great merchants and men of rapidly growing wealth had hardly time to think of these higher and better things of the mind. They had to be solicited

MUSEUM BUILDING IN 1881.

urgently and intelligently, before they could realize the importance to the city of such things.

Fortunately there came among us at an opportune time a young and intrepid enthusiast who realized keenly the possibilities of the situation and the vast importance to the city of the creation of such a museum. A pupil of Agassiz's, and a man of boundless energy and indomitable persistence, Prof. A. S. Bickmore, was a capital engine driver to propel the train of the growing sentiment, and to him, I think, more than to any other one man is due the credit of initiating the movement which resulted in our foundation. It is pleasant to think that Professor Bickmore is with us to-day to enjoy the ripe fruits of his early labors, as is also Dr. Daniel G. Elliot, an important and influential friend and scientific adviser in the early days, and now a veteran and most distinguished zoölogist, again connected with our institution as an investigator and writer.

The first thing to be done was to obtain from the State a charter of incorporation for the founders, under which the scattered elements which might make a beginning of such an enterprise could be brought to work together. I well remember our visit to Albany to wait upon the magnates of the Legislature, and ask for such a charter. William M. Tweed was then in absolute command of that body, and I will say to his credit, as one white mark against the terrible array of black ones under which his memory has long since been buried, that he received us most courteously, and seemed to recognize the importance of the project which we had in hand, and the charter was quickly obtained and signed by the Governor.

We asked for no other legislative aid, and dared not expect or hope that the money of the people of a great democratic city could be asked or required to be spent to gratify the taste or promote the scientific pursuits of a few men of wealth and culture; nor did the most ardent lover of natural history dare to dream that within a single lifetime this magnificent group of spacious buildings would be erected at the public expense for the housing of our collections, and maintained by a liberal allowance from the city treasury,—so rapid has been the growth of a wholesome popular sentiment in support of what has proved to be one of our most valuable educational establishments, and a scientific institution which holds a leading place among those of the country and of the world.

The museum was organized under the presidency of John David Wolfe, whose administration of three years, from 1869 to 1872, was the formative period of the infant body which was destined by and by to reach such colossal dimensions as we see to-day. Quarters for the storage and display of its first collections were granted by the city in the second and third stories of the old Arsenal Building near the south end of Central Park, and there

they continued to be kept, until in 1877 the first new building in the center of Manhattan Square was completed.

Those earliest days were full of struggle and full of hope, sometimes even against hope itself; and despair sometimes stalked among us as threatening and terrible as if the carnivorous dinosaur had come to life again and showed his terrible teeth; but the fidelity of the president and the never-failing generosity of the more wealthy among the trustees kept the tottering infant alive. Year after year they put their hands in their pockets to make up the inevitable annual deficit, that ever recurring terror and inspiration of all philanthropic institutions. And the boundless enthusiasm of such true lovers of nature and of nature's handiwork as William A. Haines and D. Jackson Steward, constantly breathed new life and spirit into our ambitious purpose to make it a true museum of natural history worthy of the name and of New York.

From the outset we met with the usual fate of all, whether individuals or corporations, who become known as collectors. Miscellaneous collections of every description crowded in upon us much faster than our narrow quarters and limited means could possibly provide for them. Nobody can testify from personal experience more truly than Mr. Morgan of the unhappy predicament of a recognized collector. He does not have to seek collections, but collections seek him from all quarters of the world with voracious appetites and open maw, and would bury even him out of sight, if he had not learned to say No. So it was with our young museum, which would have been bankrupt from the start, if it had not denied itself many tempting offers and learned to say No.

Our first object was to attract public attention and gain public confidence by a well-ordered exhibition of our most attractive collections, while the rest were stored away to await future developments. The trustees and their friends raised forty-four thousand dollars the first year, less than one-tenth of what some of the individual trustees have since given, and five thousand visitors rewarded their efforts as against the million who now throng these spacious halls.

The brief administration of our first president did lay the foundations of the superstructure that was soon to rise. The prestige given to the new enterprise by his high character and his unbounded generosity, followed by that of his daughter, Miss Catherine L. Wolfe, must ever be held in grateful remembrance.

Then came the awful panic of 1873, which threatened to swallow us up as if the earth had opened beneath us. Our hearts melted and our spirits gave way;— but even that calamity was tided over by renewed efforts and redoubled gifts of the richer trustees, by means of which the institution not only held its own, but made steady progress.

MUSEUM BUILDING IN 1908

All the while the trustees and their friends had been besieging the legislature to come to their aid, as every day made it more and more obvious that it was quite impossible to build up by private means alone a great museum which should be worthy to compete with the great museums of Europe, which were supported almost wholly by public monies. To show how modest our aspirations then were, a great petition signed by forty thousand citizens was presented to the Legislature, asking that a single building should be erected at the expense of the city for the joint occupation of the museum of natural history and the museum of art, which at the same time was struggling into being and leading a sickly and precarious existence in private quarters, and sustained largely by the same generous donors.

It was at this period of promising progress and of great struggles under heavy burdens that the ten years' administration of our second president, that generous and public spirited merchant prince, Robert L. Stuart, began, during which the Museum, fostered by public aid and private munificence, grew into a valued and well-recognized educational establishment.

This epoch of steady progress was ushered in by the allotment by the Legislature of the Deer Park on the east side of Central Park for the use of the Museum of Art, and of Manhattan Square, then a remote and almost inaccessible waste land, for the Museum of Natural History, and the appropriation of adequate sums for the erection of a suitable building for each on those respective localities, a most auspicious inauguration of a public policy which provided for the possible growth of each institution in the indefinite future (Manhattan Square alone consisting of eighteen acres) a policy which has already resulted in the expenditure of nearly five millions of dollars by the city under legislative authority in the erection of these magnificent buildings for the housing of our collections, upon which private beneficence has expended an equal amount. And the same may be said of the Museum of Art.

On the second of June, 1874, the corner stone of our first building, designed by Calvert Vaux, as one section of a stupendous plan to cover a large portion — nearly the whole — of the entire square, was laid with imposing ceremonies in the presence of the President of the United States, accompanied by members of his cabinet, the Governor of the State and the Mayor of the City. On the twenty-second of December, 1877, the building was opened with similar ceremonies in the presence of the same august personages. Professor Marsh and President Eliot made admirable addresses, the latter concluding his impressive exhortation to courage and progress by quoting the last words of Moses before he went up on the top of Pisgah to see the promised land which he was not to enter, "The Eternal God is thy refuge, and underneath are the everlasting arms."

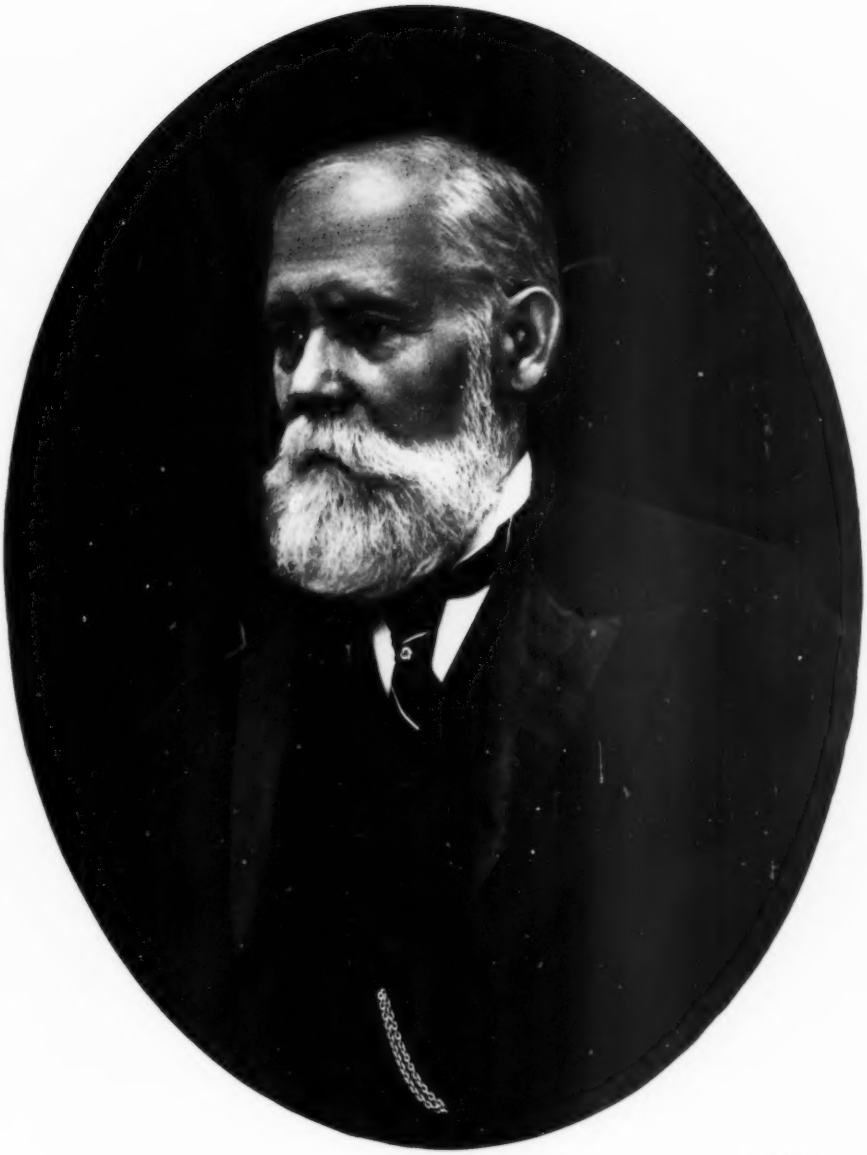
Meanwhile a contract was entered into between the city and the trustees which has subsisted without change for more than thirty-two years, and upon which the contracts of the city with other great institutions like the Museum of Art and the Zoölogical Society have been closely modeled. This contract embodies a mutually generous policy which secures equal advantage to the Museum and the public. It practically provides for a permanent occupation by the Museum of all the buildings erected or to be erected in Manhattan Square, and for a free exhibition to the public of all our collections, under regulations to be mutually agreed upon. The Museum is to continue at all times the absolute and exclusive owner of the collections, and the city the absolute and exclusive owner of the buildings. Under this arrangement the delightful and mutually beneficial relations between the Museum and the people which it inaugurated have steadily grown more close and cordial, to the immense advantage of both.

The administration of Mr. Stuart was one of enormous interest and progress. The Museum was constantly acquiring new and great collections of recognized scientific as well as popular value. A scheme of lectures to public school teachers was instituted under Professor Bickmore, and the Museum began to attract the attention of scientific bodies by the number and variety of its valuable collections. Mr. Stuart's name will be perpetuated as one of our most important benefactors.

I have thus traced the beginnings, but yet only the beginnings, of that truly beneficent institution whose fortieth anniversary we have met to-day to celebrate by the unveiling of this most lifelike statue of the one man who, more than any other — I might almost say, more than all others, for he truly inspired and led all the rest to work in coöperation with him,— has transformed the curiosity shop of miscellaneous and unrelated exhibits which was transferred hither from the old Arsenal in 1877, into this great educational and scientific establishment, this national, this truly American museum of natural history, which is the boast of New York and the admiration of the nation, and may I not say, of the world to-day? If you seek for the monument of Morris K. Jesup, you have not far to go. You have only to wander, with eyes and mind wide open, through these splendid halls, so nobly constructed and fitly equipped, and filled with these collections of wonder and of beauty, among which day unto day uttereth speech, and night unto night showeth knowledge of the works of nature, which are truly the works of God.

I shall attempt no idle words of eulogy of Mr. Jesup, but speak of him only in connection with his work as here accomplished, the crowning glory of a long and honorable life.

To the average observer, the casual layman, untrained by scientific



ALBERT S. BICKMORE

An Originator and Trustee

study, the first impression upon entering the Museum is of its immense utility as a place of popular entertainment, recreation and instruction,— recreation of the most innocent and ennobling kind, for who ever heard of an immoral naturalist, and how could the most casual study of any single thing on exhibition here fail to exalt and elevate the mind and heart? That splendid lecture room, filled to overflowing day after day and night after night with eager teachers and students listening keenly with delight and laying fast hold of instruction, not to let her go;— as the layman enters this vestibule, those wonderful visitors from other worlds, so mysterious and so impressive, excite his imagination and amazement;— as he rises from hall to hall and from floor to floor, does he desire to know the history of his own race, from the days when Adam delved and Eve span up to that considerable civilization which had developed here before Columbus came, every step in the advance from the crudest flint instrument is spread out before him;— would he see something of primitive animal life as recorded in the fossils of many succeeding ages, they are here;— does he incline to study the rocks and minerals and know how and where the most precious stones are found, there is the marvellous Morgan collection of gems, so rich in variety and beauty that the cases containing them are surrounded by hundreds day by day;— is he curious to know how trees grow, there is the splendid Jesup collection of woods from all parts of America;— do the beauties and mysteries of insect life attract him, he is lost in the mazes of entomology;— is he a lover of birds, there they are in their native habitats, all true to life;— would he know what mighty animals roamed the earth before Adam, let him gaze, awe-struck, on the brontosaurus, the mastodon and the dinosaurs in both kinds, and observe how Professor Osborn has learned to put hooks in the jaws of leviathans;— and would he see how woman in all ages has suffered for man, let him visit the copper woman, resting from her labors, immortalized on earth; but his wonder grows as he gazes at her. Will she, who was once all flesh and blood, but long since transmuted into pure copper,— will she wake with the rest of us when the last trump sounds, or has she joined the mineral kingdom forever?

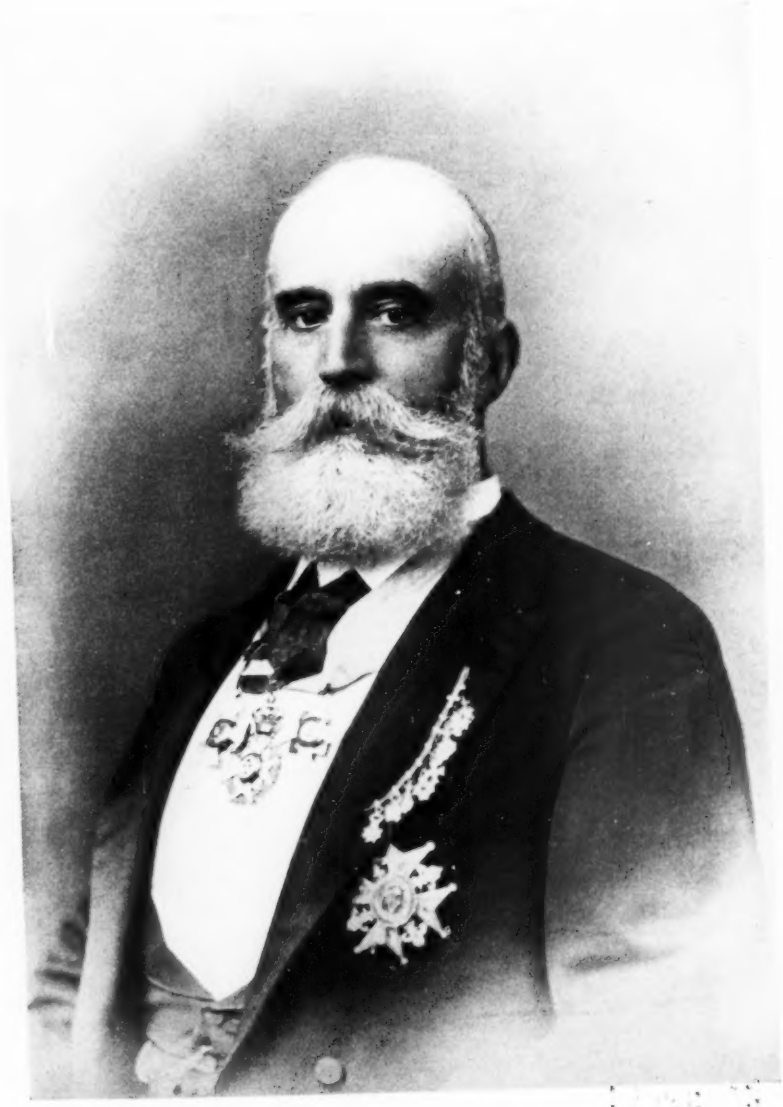
The amusement of the people, however, was only an incident in Mr. Jesup's lofty conception of the true mission of the Museum. He aimed at something far higher and nobler. His lofty purpose was to enlarge and extend the work which had been so well begun, to keep pace with the marvellous growth of the city, and develop the Museum not only into a great educational institution, imparting life and light to the people, but also, which in his mind was the chief object, to make it the home of true science, which should be the center of the scientific activities of the nation, so far as natural history was concerned,— and in all three of these objects his success was most remarkable.

Coming to the presidency in the very prime of manhood, with ample fortune achieved, and the rich experience of a great business life behind him, he bestowed upon the Museum not only generous gifts, constantly repeated, but what was far better, he gave it the best twenty-five years of his life, and all the rich powers of his generous and large-hearted nature. Stimulated by his enthusiasm and his example, the trustees and friends of the institution rallied to its support, and so rapidly did its collections grow, that the Legislature and the City, recognizing its rapidly growing needs, added every four years a new section, a new and noble building to the original edifice, so as to complete already about two fifths of Vaux's original plan, which in 1869 the trustees had had the far-sighted audacity to adopt and approve. I do not hesitate to say that the money spent by the city in the development of this Museum and the Museum of Art is the best investment of public monies ever made by it, whether we consider the direct benefit to the people, or the prestige and character attained by the city as the great metropolitan center of knowledge and culture.

The appetite of the people for what they could learn here grew by what it fed on. The establishment of the Department of Public Instruction, and the erection of a new and complete lecture hall, afforded facilities for education which were largely availed of and widely appreciated. The daily attendance rapidly multiplied, and the people showed their growing love of what they justly regarded as their own free pleasure ground.

Mr. Jesup's generous nature broadened rapidly and constantly with the growth of the work which had come to his hands, not only as to the scope of its objects, but as to the spirit in which it should be administered. This was never better illustrated than in the matter of Sunday opening. At first, and for many years, with the large majority of the trustees, he was utterly opposed to it from early training and prejudice, but as the demand grew, the subject was more carefully considered, and he and those who thought with him yielded, having become satisfied that to look through nature up to nature's God was the best way of spending a portion of the Sabbath, and both he and William E. Dodge, who sympathized with him, and who was one of our most valuable and generous trustees, assured me afterwards that this was the best step forward that the Museum had ever taken.

Mr. Jesup's extraordinary enthusiasm for science and his sympathetic admiration for scientific men, though having little knowledge of science himself, was the most striking feature of his career as President, and wholly unexpected, because he had given up his life before to business and affairs. As he said himself in the report of the trustees for 1886, "It is a difficult task to estimate the money value of what belongs to science and scientific institutions. To their value must be added their ameliorating power, their



DANIEL GIRAUD ELLIOT

educational force, and the scope they afford the higher faculties of man to apprehend the wonderful phenomena of nature, and to master and utilize her great forces." "The highest results of character and life offer something which cannot be weighed in the balances of the merchant, be he ever so wise in his generation." In this view he directed with exhaustless energy and rare intelligence the resources and progress of the Museum.

The establishment of the Department of Woods and Forestry, and his wonderful collection of the woods of America under the direction of Professor Sargent;— the creation of a great Library of Natural History;— alliances with Columbia University and the Board of Education;—the scientific arrangement of the collections in proper departments with a skilled scientific curator at the head of each;— the publications of the Museum, growing more and more valuable to science as the years progress;— the sending out of exploring expeditions to all parts of the world in quest of scientific knowledge and specimens, some of the most prominent of which were at his own expense;— the interchange of specimens and the establishment of mutual and cordial relations with other scientific societies, all testify to this lofty ambition of his to promote here the highest possible objects which he happily lived to see realized. I must not omit his generous and unfailing support of Peary in his repeated and undaunted efforts to reach the North Pole. We had hoped to have that famous discoverer here to-day, but I have the great privilege to read this letter from him, just received.

NEW YORK, February 9, 1910.

Dear Sir:

It is with the deepest regret that I am obliged to say that an engagement in another city, which cannot be postponed, will make it impossible for me to be present this afternoon on the occasion of the unveiling of the statue of my friend, Morris K. Jesup.

His breadth of mind and character is perhaps in no way indicated more clearly than by the wide range of his interests, as shown by the two projects in which his heart was most deeply centered — the future of the American Museum of Natural History and the discovery of the North Pole.

The fact that such a big, broad, practical mind as his should take up with such deep and steadfast interest the question of North Pole efforts, proved to me conclusively that my own conviction of the value of those efforts was correct.

To Morris K. Jesup more than to any other one man is due the fact that the North Pole is to-day a trophy of this country.

His faith and support carried me past many a dead center of discouragement amounting almost to despair.

Friend of unswerving faith, advisor of keen, long-headed ability, backer of princely generosity, he was first in my thoughts when I reached that goal of the centuries, first in my thoughts on my return, and my ever present regret is and has been that he could not have stayed with us a little longer to see the realization of his faith.

Faithfully,

(Signed) R. E. PEARY, U. S. N.

President HENRY FAIRFIELD OSBORN.

By all these means the Museum did become, in Mr. Jesup's life time, a veritable Mecca for scientific men and societies from all parts of the country, and foreign scientists of distinction were its frequent visitors. He labored in season and out of season with the authorities of the City and State to promote the interests of the Museum, and by the princely bequest of a million dollars doubled our endowment fund, which he had labored strenuously and already contributed generously to create. The debt of gratitude which the Museum and the City owe to him can only be repaid by continuing his work, and carrying it as near to perfection as the ever-growing domain and horizon of science can permit it to go.

We should be false to him and to our own trust if we allowed the work of the Museum to stop where he left it, advanced though that point was. Its relations with the city are fixed and permanent. It has grown with the growth of the city in the past, and it must continue to do so. Judged by its marvelous present development, New York is destined soon to become the greatest of the cities of the world. Shall it be content with riches and luxury and material strength, or shall it lead, as it ought to lead, its sister cities in higher things, in knowledge and culture, in art and science? We and our successors can give it that lead, if we will, by promoting with all our might the higher objects of such institutions as this and the Museum of Art, and the universities, so as to make the higher education and training of men and women the leading feature of our civic life.

I deem it a great privilege in behalf of the donors to present to the Museum this fine statue of our beloved and honored President, Morris Ketchum Jesup, and am glad that his Honor the Mayor, who by virtue of his office is one of our trustees, will accept it on the part of the Board.

RESPONSE

By the Honorable WILLIAM J. GAYNOR

Mayor of the City of New York

Gentlemen:

No one can witness this occasion, or go through this great Museum, without a feeling of pride in this great city. It and its citizens are constantly doing something for the moral and intellectual elevation of the community. The good thus done is incalculable. The result is that this is the most intelligent, decent and moral large city in the world. But while many

noble men and women like Mr. Jesup have been doing this work, others in recent years, aided and abetted by a very few newspapers, of which we are all ashamed, have been decrying the city and its people, and spreading throughout the world that they are sunk in vice and sin. I would that they were here this day. They might imbibe some sense of shame. They have also spread throughout the world the wholly false notion that this city is in a doubtful financial condition. The result is that recently our 4 per cent. city bonds sold down to 100.14, while the similar bonds of the comparatively small city of Baltimore sold at the same time for 105.17. It is time that the decent men of this city put an end to this. There is no safer security in the world than the bonds of this city, and yet they have been cried down, until they sell for less than railroad securities which are safe, but not absolutely safe, like the city bonds. The funded debt of this city can never exceed ten per cent. of the assessed value of the real estate on its tax books. It is, for that reason alone, of the same security as a mortgage on real estate, for only one-tenth of its value. But in addition to that, it has back of it the taxing power of the state forever. I hope that those who love this city and work to uplift it and are so worthily represented on this occasion will make their voices heard against all this detraction, and reassert the moral and financial soundness and superiority of this city.

ANNUAL MEETING OF THE TRUSTEES

AT the Annual meeting of the Board of Trustees, which was held on Monday, February 14, 1910, the following elections to the Board were announced:

In the Class of 1912, Mr. T. DeWitt Cuyler, to take the place of Mr. Cornelius C. Cuyler, deceased, and in the Class of 1914, the Hon. George W. Wickersham, in addition to Messrs. J. Pierpont Morgan, Joseph H. Choate, Henry F. Osborn and James Douglas, who were reëlected from the Class of 1910.

The following changes in the Scientific Staff were announced: In the Department of Geology and Invertebrate Palæontology, Prof. R. P. Whitfield, the Curator of the department since 1877, has been made Curator Emeritus, and Dr. E. O. Hovey has been promoted to the Curatorship; in the Department of Anthropology, Dr. Pliny E. Goddard has been appointed Associate Curator, Mr. Harlan I. Smith has been advanced to Associate Curatorship, Dr. Herbert J. Spinden has been

appointed Assistant Curator and Mr. Alanson Skinner has been added to the list as Assistant; a new Department of Public Health has been established with Prof. C. E. A. Winslow as Curator; a new Department of Woods and Forestry has been established, with Miss Mary C. Dickerson in charge.

Announcement was made at the meeting that Mrs. Morris K. Jesup had added to her previous benefactions the gift of a large collection of ethnological material from the Philippine Islands, valued at $6000, and the contribution of $10,958.33, being the sum required for the third payment on the Cape York (Peary) meteorites, which are a gift from her to the Museum.

Announcement was likewise made of a gift by Mrs. John B. Trevor of $5000 to the Permanent Endowment Fund which is to be added to the John B. Trevor Fund; of gifts from Mr. Archer M. Huntington of $5000 for anthropological work in the Southwest and $5,000 toward a fund for Antarctic exploration; and of the gift from Mr. Arthur Curtiss James of $5000 toward the Antarctic exploration fund.

MUSEUM NEWS NOTES.

SINCE our last issue the following persons have been elected to membership in the Museum: Patrons, Mr. Thos. De Witt Cuyler and Hon. George W. Wickersham; Life Members, Messrs. A. Radclyffe Dugmore, Theodore R. Hoyt, Frederic H. Kennard, Alfred H. Mulliken, Nathaniel Cushing Nash, De Lancey Nicoll, R. A. C. Smith and Alfred Rutgers Whitney, Jr.; Sustaining Member, Mr. J. B. Greenhut; Annual Members, Messrs. F. B. Adams, W. L. Andrews, Misha E. Appelbaum, Alexander Arbib, G. W. E. Atkins, Wm. Childs, Jr., Samuel W. Ehrich, Wm. H. Farrington, L. P. Feustman, Harold H. Fries, Edwin Gould, Jr., John Arthur Greene, Louis M. Greer, Edward Griffith, E. Morgan Grinnell, O. J. Gude, Henry William Guernsey, R. A. Gushee, A. Fillmore Hyde and James Nesmith and Misses M. Taber and Florence Waterbury.

Dr. Hermon C. Bumpus, Director of the Museum, sailed from New York on February 17 on a tour to Yucatan, Mexico and the southwestern States. In Yucatan, Dr. Bumpus will visit the famous Mayan ruins of

Chichen-Itza, and in Mexico he will spend some time at the great Aztec ruins at Mitla near Oaxaca. These visits are for the purpose of making field studies that will be used in reproducing certain of the prehistoric ruins of North America for structural use in the new hall of Mexican archæology which is planned for the next addition to the Museum building. On his way back from Mexico, Dr. Bumpus will visit the copper mining regions of New Mexico and Arizona, making studies for use in connection with proposed groups illustrating some famous American copper mines and will make a tour of inspection among the anthropological field parties which the Museum has in the Southwest.

Mr. Frank M. Chapman, Curator of Ornithology, sailed for Mexico on February 17, to make studies and collect specimens and accessories for one of the new series of Habitat Bird Groups. This Mexican group is designed to show the characteristic birds of the American tropics,—parrots, toucans, trogons, motmots and others. The locality represented by the foreground will be in the "tierra caliente," or tropical portions of the State of Vera Cruz, while the painted background will lead one to the snow crown of Mt. Orizaba, since to explain the significance of perpetual summer and perpetual snow in the same scene will be one of the objects of the group. Mr. Chapman is accompanied by Mr. Louis Agassiz Fuertes, the well-known artist, who will make studies for the background as well as for the birds of the group.

LECTURE ANNOUNCEMENTS

MEMBERS' COURSE

The second course of illustrated lectures for the season 1909–1910 to Members of the Museum and persons holding complimentary tickets given them by Members will be given in March.

Thursday evenings at 8:15 o'clock. Doors open at 7:45.

March 3.— Dr. Percival Lowell, "The New Canals of Mars."

These are not simply new canals to us but new on Mars. From the long continued records at the Lowell Observatory, Dr. Lowell, the Director, proves that these canals have originated on Mars within the last few months.

March 10.— Prof. Willis L. Moore, "The Story of the Weather."

Professor Moore is the Chief of the United States Weather Bureau, and in his lecture will give an account of the work of his Department, a subject of wide-spread interest at the present time.

March 17.— Prof. Henry E. Crampton, "The Living and Older Volcanoes in the South Pacific."

During the past year Dr. Crampton, curator of Invertebrate Zoölogy, spent several months among the Islands of the South Pacific, visited the active volcanoes of Kilauea in the Hawaiian Islands and Savaii in the Samoan Islands, and obtained an interesting series of photographs of these volcanoes in action.

March 24.— Mr. Gifford Pinchot, "The Conservation Movement."

Mr. Pinchot is the President of the National Conservation Association and is perhaps responsible more than any other one individual for the present efforts to conserve the natural resources of our country.

PEOPLE'S COURSE.

Given in coöperation with the City Department of Education.
Tuesday and Saturday evenings at 8:15 o'clock. Doors open at 7:30.
All lectures illustrated with stereopticon views.

MEETINGS OF SOCIETIES.

Public meetings of the New York Academy of Sciences and its Affiliated Societies are held at the Museum according to the following schedule:

On Monday evenings, The New York Academy of Sciences:

First Mondays, Section of Geology and Mineralogy;
Second Mondays, Section of Biology;
Third Mondays, Section of Astronomy, Physics and Chemistry;
Fourth Mondays, Section of Anthropology and Psychology.

On Tuesday evenings, as announced:

The Linnæan Society of New York;
The New York Entomological Society;
The Torrey Botanical Club.

On Wednesdays, as announced:

The Horticultural Society of New York;
The New York Mineralogical Club.

On Friday evenings, as announced:

The New York Microscopical Society.

The programmes of the meetings of the respective organizations are published in the weekly *Bulletin* of the New York Academy of Sciences and sent to the members of the several societies. Members of the Museum on making request of the Director will be provided with the *Bulletin* as issued

Scientific Staff.

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HERMON CAREY BUMPUS, Ph.D., Sc.D., LL.D.

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The American Museum Journal

EDMUND OTIS HOVEY, *Editor.*
MARY CYNTHIA DICKERSON, *Associate Editor.*

FRANK M. CHAPMAN,
LOUIS P. GRATACAP,
WILLIAM K. GREGORY, } *Advisory Board.*

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AMERICAN MUSEUM OF NATURAL HISTORY

A BRIEF HISTORY OF ANTARCTIC EXPLORATION

GUIDE LEAFLET No. 31
MARCH, 1910

AMERICAN MUSEUM OF NATURAL HISTORY

Seventy-seventh Street and Central Park West, New York City

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THE AMERICAN MUSEUM OF NATURAL HISTORY was established in 1869 to promote the Natural Sciences and to diffuse a general knowledge of them among the people, and it is in cordial coöperation with all similar institutions throughout the world. The Museum authorities are dependent upon private subscriptions and the dues from members for procuring needed additions to the collections and for carrying on explorations in America and other parts of the world.

The membership fees are as follows:

Annual Members	$10	Fellows	$500
Sustaining Members (Annual)	25	Patrons	1,000
Life Members	100	Benefactors (Gift or bequest)	50,000

All money received from membership fees is used for increasing the collections and for developing the educational work of the Museum.

The Museum is open free to the public on every day in the year.

A Brief History of Antarctic Exploration

A Guide Leaflet explanatory of the
Spherical Chart of the Antarctic Regions
exhibited in the
American Museum of Natural History

No. 31
of the
Guide Leaflet Series
of the
American Museum of Natural History
Edmund Otis Hovey, *Editor*
New York. Published by the Museum. March, 1910

A BRIEF HISTORY OF ANTARCTIC EXPLORATION

INTRODUCTION

The chart (which is a section of the Globe) is designed to illustrate our present knowledge of the geography of the Antarctic regions, and to indicate the courses taken by the principal Antarctic explorers.

The visitor is supposed to be looking down upon the South Pole, and therefore the area of his horizon extends in all directions toward the north, reaching beyond the Antarctic Circle [66° 30′ south, drawn in red] to the parallel of 60° south. It is a relatively small portion of the earth's surface, as will be seen by examining the small globe.

Since a degree of latitude measures about 70 miles,[1] the concentric circles representing parallels (which are 5° apart) are about 350 miles from one to another.

It is about 2,100 miles from the margin of the chart to the center, or from the parallel of 60° to the South Pole.

Meridians, drawn every 10° apart, intersect at the Pole. The meridian of Greenwich, indicated by three parallel lines, lies vertically.

The degrees of longitude are indicated along the margin, and the degrees of latitude are indicated by numerals placed on the respective parallels.

More readily to understand the historical description, it will be worth while for the visitor to remember

[1] Throughout this Leaflet distances are expressed in "statute" miles, a statute mile being about six-sevenths as long as a geographical or nautical mile.

That were the "meridian of Greenwich" continued northward, it would finally pass through Greenwich, England;

That all points lying to the right of this line are in east longitude;

That those lying to the left are in west longitude;

That were the meridian of 74° west (on the left, represented in red) extended to the north, it would pass through New York;

That the southerly projection of South America lies on the meridian of 70° west, to the left of the chart, about 600 miles from the South Shetlands;

That the southern projection of Africa lies on the meridian of 20° east, above the chart, more than 2,000 miles from the Antarctic ice.

That New Zealand lies on the meridian of 170° east, below the region included in the chart, about 1,700 miles from Victoria Land;

That between these points lie the vast expanses of the South Atlantic, South Indian and South Pacific Oceans, respectively.

The visitor, then, having established his "points of compass," may now with greater profit consult the historical labels which are attached to the rail, in the order of the dates of discovery.

JAMES COOK, 1772-75

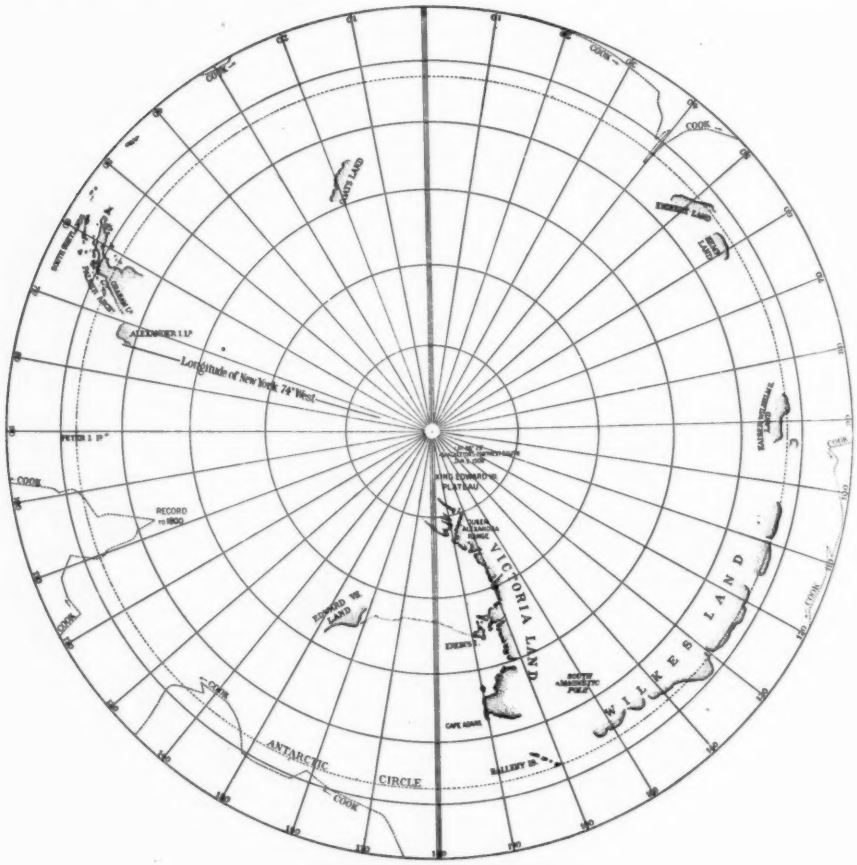
Resolution and *Adventure*

[The course is indicated on the chart by a white line.]

There was little definite knowledge of lands lying in the far south until Captain Cook, a young man of the British Navy (who, by the way, had gained distinction in North America at the siege of Quebec), sailed to the South Pacific (1768–1771) to observe the transit of Venus, and in doing so passed south of New Zealand and thus corrected the belief that this island was a part of an extensive Antarctic continent.

Later, in 1772, Cook was commissioned by the British Admiralty to command two vessels and to examine into the question of the existence of a great southern continent. He sailed from Plymouth in July, reached Cape Town in October, and entered the area of this chart near the 20th meridian of east longitude. He took an easterly course, then one abruptly south, and, on January 17, 1773, was the first person to cross the Antarctic Circle. Further progress being blocked by the ice, Cook took a northerly course. He missed the Crozet and Kerguelen islands (which lie without the area of the present map, but may be noted on the small globe). He then turned to the south, and crossed the 60th parallel near the 90th meridian, the ice

preventing him from seeing the land, which has lately been discovered and named in honor of the German Emperor, Kaiser Wilhelm II. He then continued, sometimes north and sometimes south of the 60th parallel, to about 150° E., when cold weather drove him north, where he wintered.



ANTARCTIC REGIONS

ROUTE FOLLOWED BY JAMES COOK, 1772–1775

He then returned, crossed the 60th parallel near 180° and entered the area of the chart, crossed the Antarctic Circle a second time near 150° W., turned and made a wide detour to the north, and proved that there could be no

considerable land between New Zealand and Cape Horn. He again entered the area here represented at about 120° W., crossed the Antarctic Circle for the third time, in January, 1774, near 110° W., and made his farthest south (71° 10′), a record that was not broken for half a century. It was here that he saw the solid ice like a ridge of mountains. Cook then sailed north in search of alleged land (Juan Fernandez), which he proved not to exist, and the tired party then spent the winter in the South Pacific.

On the return of the Antarctic spring, November, 1774, Cook left New Zealand and renewed his efforts. He took an easterly course near the 55th parallel until he reached the islands of Tierra del Fuego. He then rounded Cape Horn and, having proved the non-existence of a continent in the South Pacific, began his search for the "Continent of the South Atlantic"—if such should exist. He discovered South Georgia, near the 40th meridian of west longitude, but not sufficiently south to be shown on this chart. This was the first typical Antarctic land that he had found. He then barely crossed the 60th parallel, discovered the Sandwich group (examine smaller globe), which, surrounded by fields of ice, he felt might be a part of the "Southern Land." Cook then left the area of this map, sailed north-easterly, shaping his course for Cape Town, and thence to England, where he ended his extraordinary voyage. It is noteworthy that Cook, the first successful Antarctic explorer, not only circumnavigated the Antarctic regions, but proved the non-existence of any extensive Antarctic land mass extending north of the Antarctic Circle.

1775-1819

From the time of Cook's voyage, 1775, this region remained unexplored and practically unvisited for a period of more than forty years, although it is true that at the

beginning of the nineteenth century several American vessels regularly visited the shores of South Georgia and the neighboring islands off the coast of South America for seals. The more enterprising of these doubtless discovered many Antarctic islands that they never took the pains to chart or even to report upon.

WILLIAM SMITH, 1819

Williams

[The course is not indicated.]

In 1819, Captain William Smith, while sailing a British merchantman, reported the discovery of the South Shetlands (see meridian 60° W.) and sailed along their coast for a distance of 250 miles.

N. B. PALMER, 1821

Hero

[The course is not indicated.]

In 1821, an American sealer, Captain Palmer, sailed south from the Shetlands, discovering volcanic islands which have been named the Palmer Archipelago.

Captain George Powell, a British sealer, accompanied Palmer, and discovered and charted, in 1821 and 1822, the South Orkney Islands (40°–50° W.).

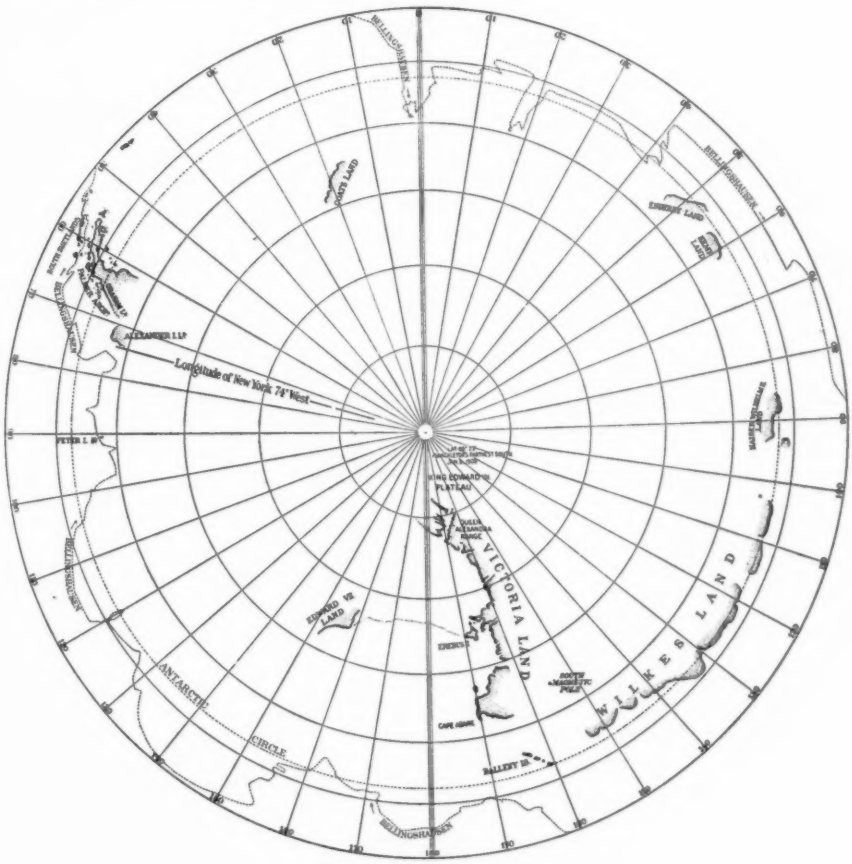
F. G. BELLINGSHAUSEN, 1820-1821

Vostok and *Mirny*

[The course is indicated by an orange line.]

After the British expedition of Captain Cook, the first really important expedition to the South Polar regions was under the patronage of the Russian Emperor, Alexander II,

who appointed Bellingshausen to the command. With two vessels Bellingshausen sailed to the south in January, 1820, near the islands of the Sandwich group (discovered by Captain Cook), then easterly, and entered the area of this chart near the meridian of 10° W.



ANTARCTIC REGIONS

ROUTE FOLLOWED BY F. G. BELLINGSHAUSEN, 1820–1821

Bellingshausen turned abruptly south, crossed the Antarctic Circle, entered an absolutely unexplored sea, and stopped only when he met the impenetrable ice of the 70th parallel. He then continued toward the east, and, follow-

ing the edge of the ice, crossed the Antarctic Circle a second time, reaching 69° S., near the meridian of 20° E., in February, 1820. He then retreated, proceeded farther eastward, and crossed the Antarctic Circle a third time, near the spot where Cook made his first crossing.

Bellingshausen then proceeded easterly near the 60th parallel, leaving the area of this map, near the meridian of 90° E., and shaped his course for Sydney, Australia.

In November, 1820, Bellingshausen again sailed to the south, crossed the 60th parallel near the 160th meridian, met the pack ice at the 65th parallel, crossed the Antarctic Circle for the fourth time (164° W.), and was obliged then to take a course north of Cook's. He crossed the Circle the fifth time on the 120th meridian west. The ice drove him temporarily to the north, but he returned, and for the sixth time crossed the Circle, at 100° W., and continuing reached his farthest south—69° 52′. Near this point he discovered Peter Island, the most southerly land then known. Still farther to the east, he discovered Alexander Island, when he was again forced by the ice to retreat, and, entering the South Shetland group, met there, February 4, 1821, among others, Captain Palmer, already mentioned. Thus ended one of the most successful and important of Antarctic expeditions.

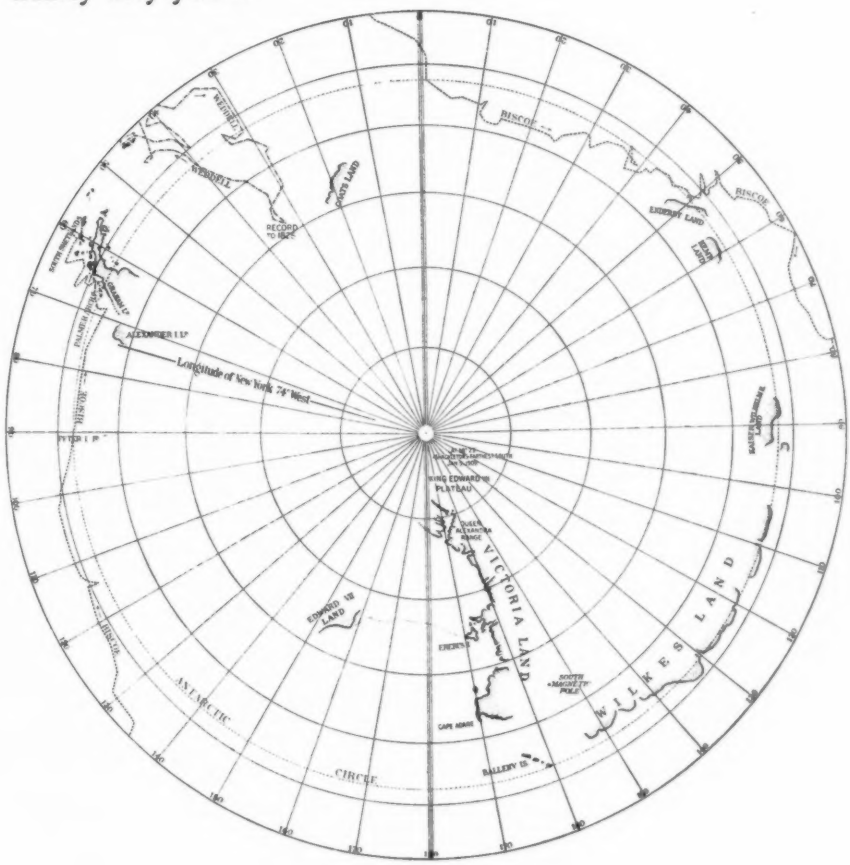
JAMES WEDDELL, 1823

Jane and *Beanjoy*

[The course is indicated by a pink line.]

In 1823, James Weddell, a brave Englishman, after having explored the South Shetlands and worked around the South Orkneys, forced two small sealing vessels southward through the sea which bears his name, to 74° 15′ S., a point 214 nautical miles nearer the pole than had been

reached by Cook, thus breaking a record that had stood nearly fifty years.



ANTARCTIC REGIONS

ROUTES FOLLOWED BY JAMES WEDDELL, 1823; JOHN BISCOE, 1830–1832

JOHN BISCOE, 1830-1832

Tula and *Lively*

[The course is indicated by a blue line.]

Enderby Land, lying at the intersection of the meridian of 50° E. and the Antarctic Circle, was discovered in 1831 by Biscoe, a British sealer exploring under a commission

from the merchant firm of Messrs. Enderby, who had entered the South Polar regions by way of the Sandwich group.

The course of Biscoe will be found entering the present map near the meridian of Greenwich; thence passing to the south, across the course taken by Bellingshausen, eleven years earlier, to the point on the 40th meridian east reached by Cook and Bellingshausen, thence along the Antarctic Circle to Enderby Land.

Severe sickness and other trials now compelled Biscoe to turn north, and he left the area of this map near the 80th meridian. He wintered in Tasmania. With the return of warm weather, he sailed from Tasmania east, crossed the 60th parallel near 140° W., followed near the course of Bellingshausen, crossed the Antarctic Circle near the meridian of 80° W. and entered Bellingshausen Sea, where he discovered land, now known as the Biscoe Islands.

Biscoe, unacquainted with the earlier work of the Russians, supposed that he had discovered land lying farther to the south than that found by any other explorer. He landed on the Palmer Archipelago and described new land which, in honor of Lord Graham, he called "Graham Land." He then returned home.

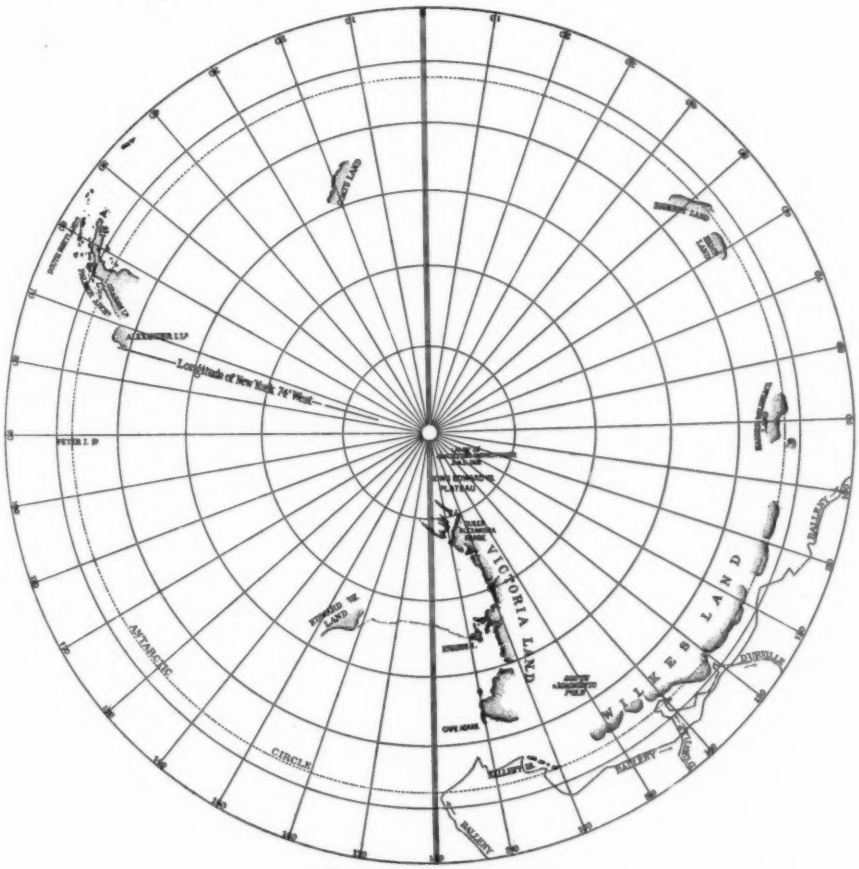
DUMONT D'URVILLE, 1837-1840

Astrolabe and *Zelée*

[The course is indicated by a green line.]

In September, 1837, the French sent Commander d'Urville, in charge of two warships, to explore in the south. He attempted to enter Weddell Sea, but ice prevented. He then sailed to the westward and early in 1838 explored the land to the south of the South Shetlands, dedicating it to his sovereign, Louis Philippe. He then

entered the Pacific, where he remained for two years. Leaving Tasmania and again entering the southern seas, d'Urville found land, stretching indefinitely to the east and west, in the latitude of the Antarctic Circle and near the meridian of 140° E. Landing parties found the rocks to be of granite.



ANTARCTIC REGIONS

ROUTES FOLLOWED BY DUMONT D'URVILLE, 1837–1840; JOHN BALLENY, 1838–1839

While in this neighborhood, d'Urville unexpectedly met an American expedition under Wilkes.

With the return of d'Urville, French activity in the Antarctic was brought to a close, until its recent revival.

JOHN BALLENY, 1838-1839

Eliza Scott and *Sabrina*

[The course is indicated by a brown line.]

In 1838, the Enderbys (who, as before stated, had made it possible for Biscoe to circumnavigate the Antarctic), in conjunction with other London merchants, sent two vessels under John Balleny into the Antarctic, with instructions to push as far to the south as possible. Balleny entered from New Zealand, near the meridian of 180° and crossed Bellingshausen's track. Entering what was later known as Ross Sea, he discovered in 1839 the group of small volcanic islands which bears his name. This was the first land found within the Antarctic Circle south of New Zealand, and its discovery was the first step toward the final discovery of Victoria Land. Balleny left the area of this map at 100° E., failing, however, to discover the land which we now know was just south of his course. Members of this expedition, on returning, reached London in time to meet Ross before the departure of the *Erebus* and *Terror*.

CHARLES WILKES, 1839-1840

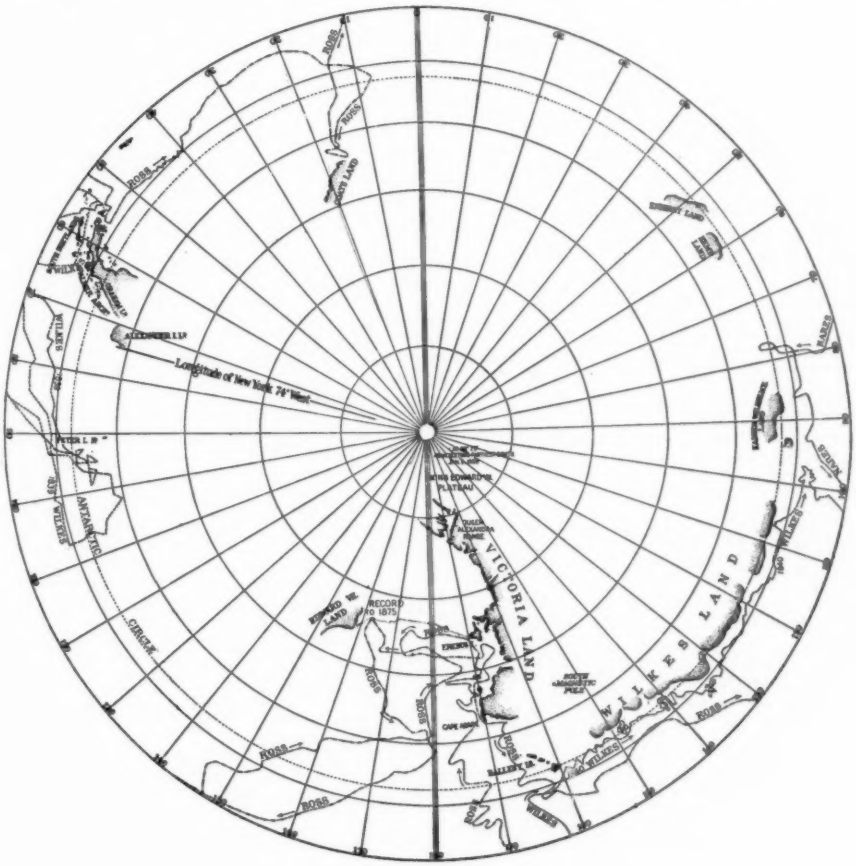
Vincennes, *Peacock* and *Porpoise*

[The course is indicated by a red line.]

In February, 1839, Lieutenant Charles Wilkes, at the head of the United States Exploring Expedition, with a squadron of six vessels poorly equipped and poorly adapted to polar work, entered the South Polar regions from Tierra del Fuego.

He first made an effort to explore land to the south of the South Shetlands, in the neighborhood of 60° W., and then in the neighborhood of Cook's farthest south, 105° W. These efforts were unsuccessful. Four of the vessels then proceeded to Sydney, Australia, whence two under

Wilkes and two under Ringgold roughly explored the strip of land, or lands, lying near and parallel to the Antarctic Circle, which extends from the Balleny Islands (165° E.) to 95° E., a distance of 1500 miles, a tract now known in



ANTARCTIC REGIONS

ROUTES FOLLOWED BY CHARLES WILKES, 1839–1840; JAMES CLARK ROSS, 1839–1843; G. S. NARES, 1874

general as Wilkes Land. He thus took a course in this area more southern than that of any previous explorer known to him, although d'Urville, in a quick sail to the south from Tasmania, had discovered Adélie Land on the

140th meridian at about the same time. The American and French expeditions met each other near this point. The course of Wilkes, as he returned from the Antarctic, will be found to cross the 60th parallel near the meridian of 100° E.

JAMES CLARK ROSS, 1839-1843

Erebus and *Terror*

[The course is indicated by a purple line.]

James Clark Ross, a nephew of Sir John Ross, the Arctic explorer, and one who had had several years of Arctic experience (indeed it was he who in 1831 had sledged to the North Magnetic Pole and planted there the British flag), left Tasmania in 1840 in command of the *Erebus* and *Terror*. The primary object of the expedition was to make certain magnetic explorations in the extreme south. In less than five months Ross returned to report the extraordinary results of his expedition.

Fully informed concerning the discoveries of Wilkes, he determined to seek high latitudes to the east of the Balleny Islands, and with little difficulty sailed into a new sea and discovered land extending from Cape Adare to the volcanoes of Erebus and Terror, 77° S.,—a distance north and south of approximately 400 miles. He thus reached a point considerably farther south than that attained by any previous explorer. These discoveries, taken conjointly with those of Wilkes, indicated the probability of the existence of a large polar land mass.

Ross plotted a part of the shore line of that portion of the Antarctic Continent now known as Victoria Land. Returning, he crossed the Antarctic Circle near the meridian of 170° W. His course leaves the area of this map at 140° W., reënters it at 130° W., again passes out to the

north, enters it anew near 50° W., and skirts the ice barrier across the mouth of Weddell Sea to the meridian of 20° W. He finally reached England in September, 1843, having been absent for more than four years.

G. S. NARES, 1874

Challenger

[The course is indicated by transverse red and white bands.]

In 1874, the British steamship *Challenger*, equipped for scientific work and carrying an able scientific staff, entered the Antarctic from Kerguelen Island, crossing the Circle near the 80th meridian east, and then followed the drift ice easterly as far as Wilkes Termination Land. The *Challenger* was the first steam vessel to enter the Antarctic, and the first provided with adequate sounding and dredging apparatus. As a result of the *Challenger's* investigations, the existence of an Antarctic continent was proved and the fact that a wealth of animal life covers the floor of the Antarctic seas was established.

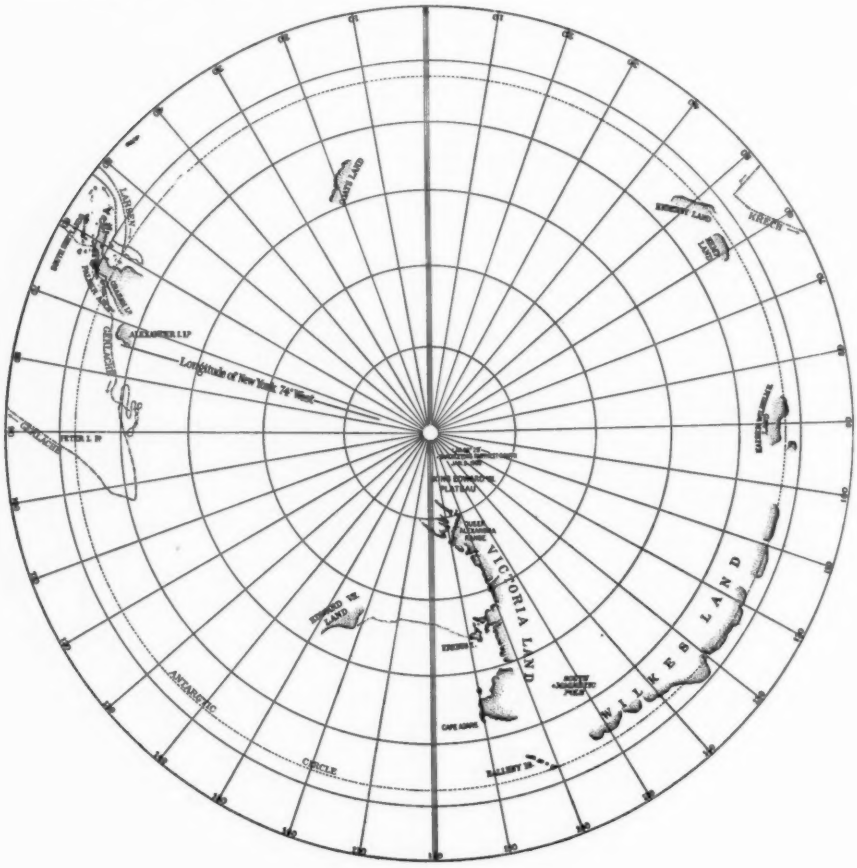
C. A. LARSEN, 1893-1894

Jason

[The course is indicated by red, yellow and blue bands.]

During the last quarter of the nineteenth century, with the waning of the whaling industry in the north and with the report of the existence of large numbers of whales in the south, the small steam whalers of Scotland and Scandinavia made several expeditions into the Antarctic. Among these was the *Jason*, commanded by C. A. Larsen, the same vessel and the same captain that a few years before had left Nansen on the east coast of Greenland. The *Jason* landed south of the South Shetlands and Larsen discovered the

first Antarctic fossils (mollusks and coniferous wood). Previous to this, samples of rock from the Antarctic had been igneous in origin. The fossils proved that at least part of this region was not volcanic.



ANTARCTIC REGIONS

ROUTES FOLLOWED BY C. A. LARSEN, 1893–1894; ADRIEN DE GERLACHE, 1898–1899; ADALBERT KRECH, 1898–1899

The following year Larsen returned to the Antarctic, discovered King Oscar II Land, and forced the *Jason* (the second steamer to cross the Antarctic Circle) to a point 68° 10′ S., roughly exploring the eastern coast of

Graham Land. He discovered two active volcanoes near 65° S.

The *Jason* subsequently was renamed the *Stella Polare* and carried the Duke of the Abruzzi's Arctic expedition to Franz Josef Land, whence Captain Cagni, in 1900, made the nearest approach to the North Pole that had been accomplished up to that time.

LEONARD KRISTENSEN, 1894-1895

Antarctic

[The course is not indicated.]

In November, 1894, the steam sealer and whaler *Antarctic*, under Leonard Kristensen, sailed south from New Zealand with C. E. Borchgrevink, who took passage as a common sailor, and entered Ross Sea. The *Antarctic* followed, in part, the course taken fifty-five years before by Ross. The party landed on Possession Island and discovered a lichen—the first evidence of terrestrial plant life obtained within the Antarctic Circle. A few days later the first landing on the Antarctic Continent was made at Cape Adare. As whales of commercial value were not found, the *Antarctic* returned.

ADRIEN de GERLACHE, 1898-1899

Belgica

[The course is indicated by red, yellow and black bands.]

Belgium now entered the field of Antarctic work. Adrien de Gerlache, a lieutenant in the Belgian navy, left Tierra del Fuego on the *Belgica* in January, 1898, with several scientists and with Dr. F. A. Cook of Brooklyn as ship's surgeon. The Belgians ran the first line of soundings from Cape Horn to the South Shetlands. The naturalists made

many landings, taking photographs and collecting natural history specimens from the shores of Palmer and Graham Lands. In their zeal to explore still farther south, they were caught in the ice at 71° 30′ S., and were the first explorers to pass the winter within the Antarctic Circle.

ADALBERT KRECH, 1898-1899

Valdivia

[The course is indicated by diagonal red, white and black bands.]

The *Valdivia*, of the Hamburg-American Line, commanded by Adalbert Krech, was carefully fitted out for scientific work by Professor Chun of Leipzig. Her first important problem was to determine the existence or non-existence of Bouvet Island, which had been sought in vain by Cook, Ross and Moore, and had not been seen for seventy-five years. It was found 54° 26′ S., 3° 24′ E. The *Valdivia* then proceeded towards Enderby Land, and thence to Kerguelen Island, making important soundings and dredgings.

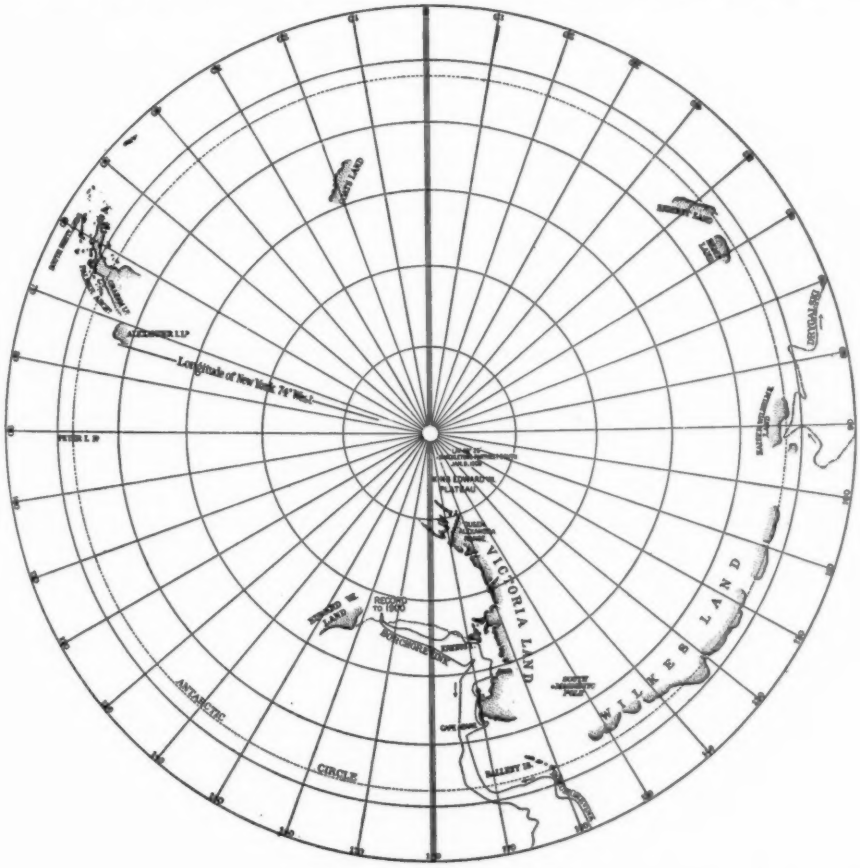
C. E. BORCHGREVINK, 1899-1900

Southern Cross

[The course is indicated by red, alternately narrow and broad, and white bands.]

In February, 1899, C. E. Borchgrevink, a member of Kristensen's expedition of 1894, determined to spend the winter in the Antarctic and again crossed the Circle—this time not as a sailor, but in command of an English expedition. He landed with his party of ten on Victoria Land, near Cape Adare, and bade adieu to his vessel, the *Southern Cross*, which sailed for warmer latitudes, to return at the close of the Antarctic winter. The unhappy members of the

Belgian expedition on the opposite side of the Pole were endeavoring to extricate themselves at the very time Borchgrevink and his companions entered winter quarters. The season was severe and the *Southern Cross* was most welcome on her return, January 28, 1900. A course was then



ANTARCTIC REGIONS

ROUTES FOLLOWED BY C. E. BORCHGREVINK, 1899–1900; ERICH VON DRYGALSKI, 1902–1903

taken still farther to the south along the coast of Victoria Land. Landings were made and the shore of Ross Sea (78° 21′ S.) was reached. A brief sledge trip reached 78° 50′ S. The party then sailed north for Auckland.

ERICH von DRYGALSKI, 1902-1903

Gauss

[The course is indicated by transverse red, white and black bands.]

Professor Drygalski's expedition was made in the German barkentine, *Gauss*, which was designed for strictly scientific work. She was modeled on the lines of the *Fram* and manned by men who had had polar experience. The *Gauss* sailed from Kerguelen Island and in February, 1902, entered the pack near Wilkes Termination Land. Land was soon sighted, but the vessel was caught in the ice and Drygalski was compelled to enter winter quarters. Sledge parties and views from a balloon located Kaiser Wilhelm II Land. The party was liberated the following February and returned to Germany. The collections of the *Gauss* are now being worked up.

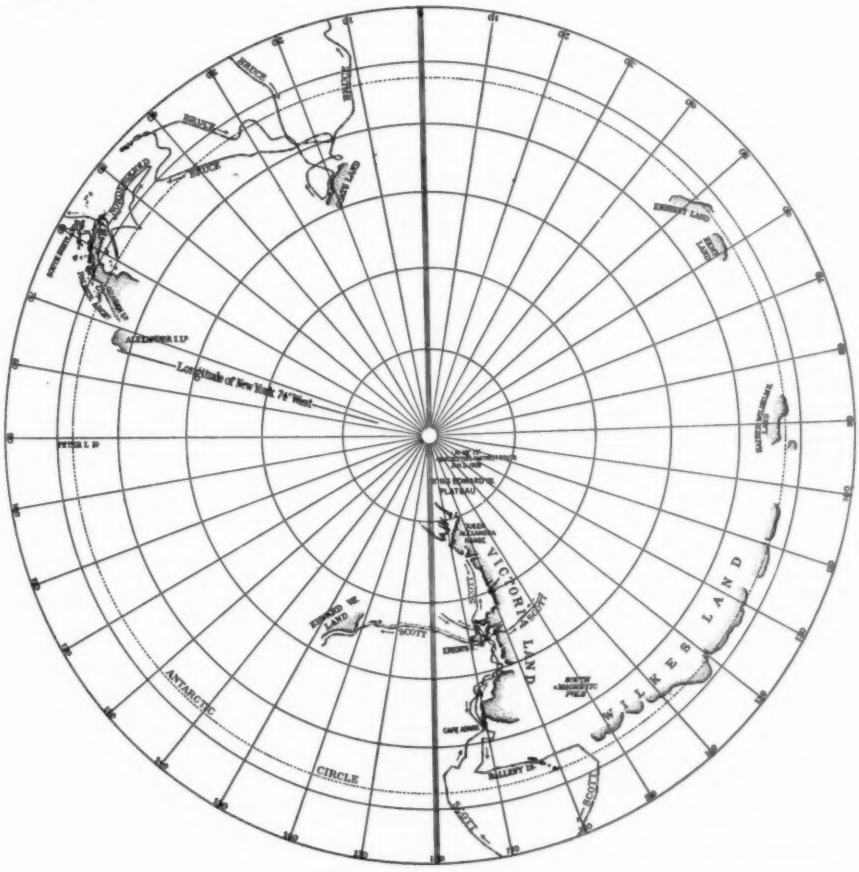
OTTO NORDENSKJÖLD, 1902-1903

Antarctic

[The course is indicated by red and blue bands with yellow dots.]

The geologist, Otto Nordenskjöld, nephew of the Swedish Arctic explorer, Baron A. E. von Nordenskjöld, obtaining funds from his countrymen, secured Kristensen's vessel, the *Antarctic*, engaged C. A. Larsen (earlier attached to the *Jason*), and leaving the South Shetlands in January, 1902, explored in the neighborhood of King Oscar II Land. Landing with three companions to spend the winter on Snow Hill Island, he directed the *Antarctic* to explore in lower latitudes and to return the following spring. The season was very severe. The following spring the *Antarctic*, unable to reach Snow Hill Island, was crushed in the ice and lost. In the meantime, the *Uruguay*, a relief vessel which had been sent out by the

Argentine Government, reached Nordenskjöld on November 8, 1903. The same day Larsen appeared in camp with five of his companions and reported the fate of the *Antarctic.*



ANTARCTIC REGIONS

ROUTES FOLLOWED BY OTTO NORDENSKJÖLD, 1902–1903; R. F. SCOTT, 1902–1904; W. S. BRUCE, 1903–1904

It may be of interest to the visitor to know that Mr. Frank Wilbert Stokes, the artist of the mural paintings in the Eskimo Hall, was a member of this expedition.

R. F. SCOTT, 1902-1904

Discovery

[The course, in part, is indicated by diagonal white and red bands.]

The *Discovery*, under Captain R. F. Scott, a new and well-equipped vessel, manned by officers of the British navy and bearing a scientific staff of well-qualified men, crossed the Antarctic Circle in January, 1902, proceeded to Cape Adare, along the coast of Victoria Land, thence east beyond the point reached by Ross, and discovered Edward VII Land. Captain Scott then returned and placed the *Discovery* in winter quarters near Mount Erebus, where the season was pleasantly spent. On November 2, Scott, Shackleton and Wilson began their heroic sledge journey over the polar ice cap to the south, a distance of 380 miles from their ship. They planted the British flag at 82° 17′ S.

On January 25, 1903, Captain Colbeck of the relief ship *Morning* sighted the *Discovery* and, since the latter vessel could not be freed from the ice, stores were left and the *Discovery* party spent its second winter in the Antarctic. The cold was intense—frequently 50° below zero, and even 68°, was registered. During the spring, Scott and his party traveling westerly reached a position on the elevated plateau of the Antarctic Continent 9,000 feet above sea level. On January 5, 1904, the relief ship *Morning* again appeared, accompanied by another and larger vessel, the *Terranova*. For a while it was thought that the *Discovery* must be abandoned, but on February 16 she was released and sailed for home, thus concluding what must be considered an expedition of extraordinary success.

W. S. BRUCE, 1903-1904

Scotia

[The course is indicated by red and blue bands.]

In 1902, the Scotchman, W. S. Bruce, who was in the Antarctic in 1893 and in the Arctic on the Jackson-Harmsworth expedition in 1894–1897, induced certain of his countrymen to provide funds to equip the *Scotia*, a small Norwegian whaler. He left the South Orkneys early in February, 1903, crossed the Antarctic Circle and made extensive soundings. He wintered on the South Orkneys. In January, 1904, additional soundings were begun and, proceeding south, land was discovered in 74° 1′ S., 22′ W. It was named Coats Land, in recognition of support furnished the expedition by the Messrs. Coats, the famous thread manufacturers.

JEAN CHARCOT, 1903-1905

Français

[The course is not indicated.]

Dr. Jean Charcot, anxious because Nordenskjöld had been obliged to spend a second winter in the south, built the *Français* and organized a relief expedition. He met the Argentine Relief Expedition as it was returning with the Nordenskjöld party. Determining, however, that the *Français* should do some Antarctic work before her return, he remained in the South during the seasons of 1903 to 1905, charting the western coast of the islands of the Palmer Archipelago.

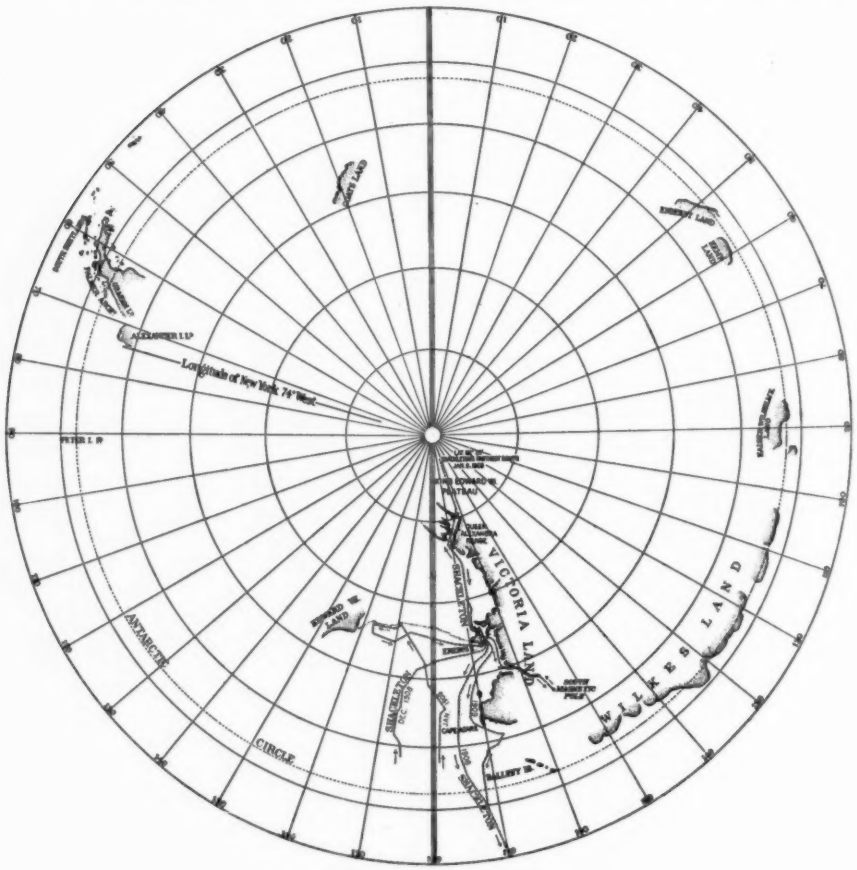
E. H. SHACKLETON, 1908-1909

Nimrod

[The course, in part, is indicated by red, white and narrow blue bands.]

Early in 1908, Lieutenant Shackleton on board the *Nimrod*, with a party of about fifteen men, dogs, Siberian

ponies, a motor car and other equipment, entered the Antarctic regions near the 180th meridian. Passing through Ross Sea and along the edge of the great ice barrier, they almost reached King Edward VII Land, but found further progress in that direction blocked by impenetrable



ANTARCTIC REGIONS

ROUTE FOLLOWED BY E. H. SHACKLETON, 1908–1909

pack-ice. They then proceeded to Cape Royds near the volcano, Mount Erebus. Here the *Nimrod* left them and went north, to return the following spring. Relatively elaborate winter quarters were established at Cape Royds

in a specially designed hut made of cork. In March, 1908, a party of six ascended Mount Erebus to its summit, 13,500 feet above sea level.

On October 5, 1908, a party of five started on its journey to the South Magnetic Pole, which was reached on January 16, 1909. The position of the magnetic pole was determined to be 72° 25′ S., 155° 16′ E. The south point of the compass always turns towards this point. Therefore, between the South Magnetic Pole and the South Geographic Pole the south point of the compass is directed due north. This party, returning to the coast February 3, was picked up by the *Nimrod* and taken to Cape Royds.

On October 29, 1908, Shackleton and three others—with a supporting party of five, which turned back November 7—set out for the South Geographic Pole. They followed, roughly, the 168th meridian east until in late November they reached Scott's farthest south—82° 17′ S. Christmas day found them at 85° 55′ S., and by 9:00 A.M., January 9, 1909, they had reached 88° 23′ S. Beyond this point they could not go on account of the hard traveling and the exhaustion of their food supply. No mountains were visible beyond, and it is probable that the South Pole is situated on a level plateau 10,000 to 11,000 feet above sea level. After an extremely hard return journey on short rations, Cape Royds was reached March 4, 1909. The *Nimrod* and the supporting and relief parties were there waiting, and the next day all started for home.

In addition to discovering the South Magnetic Pole and reaching a point within 110 miles of the South Geographic Pole, the main results of the journey were the finding of coal (showing that in the past this region enjoyed a mild climate), the procuring of a complete meteorological record and the discovery of eight distinct mountain ranges varying from 3,000 to 12,000 feet in altitude.

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